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EXAMINER	
HINES, JANA A	

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1645	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/748,524	PARIZEK ET AL.	
	Examiner	Art Unit	
	Ja-Na Hines	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 September 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *46 and 47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *46 and 47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/7/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Amendment Entry

1. The amendment filed September 19, 2007 has been entered. Claims 1-45 have been cancelled. Claims 46-48 have been amended. Claims 46-48 are under consideration in this office action.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on November 7, 2007 was filed. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Withdrawal of Objections

3. The following objections and rejections has been withdrawn in view of applicants' amendments:

a) The objection of claims 46-48; and

b) The rejection of claims 46-48 under 35 U.S.C. 112, second paragraph.

Response to Arguments

4. Applicant's arguments filed September 19, 2007 have been fully considered but they are not persuasive.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 46-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts (WO 94/22476, published October 13, 1994) in view of Lund (3,920,811 published November 18, 1975).

Claim 46 is drawn to a method of immunizing cattle without significant injection site lesion formation comprising amount of injecting into said cattle about 2ml of a multicomponent vaccine for cattle comprising an immunogenically effective combination of a protective antigen component from six clostridial organisms, a protective antigen component from at least one non-clostridial organism which is *Moraxella bovis* (*M.bovis*) and an encapsulating polymer adjuvant whereby the encapsulating polymer adjuvant releases antigens slowly at the site of injection and whereby injection site lesion formation is reduced at least 40% compared with an injection of 5 ml of said vaccine into said cattle and effective immunization is accomplished.

Claim 47 is drawn to a method of immunizing cattle without significant injection site lesion formation comprising amount of injecting into said cattle about 2ml of a multicomponent vaccine for cattle comprising an immunogenically effective combination of a protective antigen component from seven clostridial organisms, a protective antigen

component from at least one non-clostridial organism which is *M. bovis* and an encapsulating polymer adjuvant whereby the encapsulating polymer adjuvant releases antigens slowly at the site of injection and whereby injection site lesion formation is reduced at least 40% compared with an injection of 5 ml of said vaccine into said cattle and effective immunization is accomplished.

Claim 48 is drawn to a method of immunizing without significant injection site lesion formation comprising amount of injecting into said cattle about 2ml of a multicomponent vaccine for cattle comprising an immunogenically effective combination of a protective antigen component *Cl. chauvoei, Cl. septicum, Cl novyi, Cl. perfringens type Cl, CL perfringens type D, CL. sordellii Cl. tetani* and *Cl. haemolyticum*, the protective antigen component from at least one non-clostridial organism which is *M. bovis* and an encapsulating polymer adjuvant whereby the encapsulating polymer adjuvant releases antigens slowly at the site of injection and whereby injection site lesion formation is reduced at least 40% compared with an injection of 5 ml of said vaccine into said cattle and effective immunization is accomplished.

Roberts teaches a multicomponent clostridial vaccine comprising *Clostridium chauvoei, Clostridium septicum, Clostridium novyi, Clostridium sordellii, Clostridium perfringens,* Type C and Type D and *Clostridium haemolyticum,* and an adjuvant (page 3, lines 1-5). Roberts teaches that non-clostridial antigens such as *Moraxella bovis,* are added to the multicomponent vaccines in order to afford protection against a wide spectrum of diseases (page 5, lines 10-15). Roberts teaches the bacterins and toxoids are administered in vaccine compositions including readily dispersible soluble adjuvants

thereby avoiding chronic irritation at the injection site (page 6, lines 13-15). Roberts teaches that the dispersible, soluble adjuvants exhibit low tissue reactivity (page 4, lines 26-28). Roberts teaches immunizing cattle or bovine, by injecting between 1 to 5ml wherein the injection amount is as low as 0.5ml (page 8 lines 24-34).

Roberts teaches that the vaccines are administered without harmful side effects and chronic inflammatory responses that produce granulomas and abscesses (page 4, lines30-33). Roberts teaches that clostridial vaccines require adjuvants in order to increase potency and enhance stability (page 1, lines 32-35). Roberts discloses that other potent adjuvants have been used with clostridial vaccines, including CARBOPOL ™ polymers (page 2, lines 1-5). However Roberts does not specifically recite an encapsulating polymer adjuvant whereby the encapsulating polymer adjuvant releases antigens slowly at the site of injection without significant permanent injection site lesion formation.

Lund teaches an adjuvant polymer, such as CARBOPOL ™, is retained at the site for prolonged slow release that acts by adsorbing the active agent onto the polymer (col.1-2, lines 67-5). Lund teaches the inclusion of active agents such as *Cl. Perfringens* Types B, C and D, *Cl. tetani*, *Clostridium chauvoei*, *Clostridium septicum, Clostridium haemolyticum, Clostridium novyi,* and *Clostridium sordellii* whose effects are prolonged or enhanced by their inclusion with the adjuvant polymers (col.5, lines 24-38). Examples 17-19 teach injecting CARBOPOL ™ and *Clostridial* bacterins without significantly lowering the potency of the *Clostridium* bacterins.

It is noted that the instant specification teaches that adjuvants polymers, function by encapsulating antigens and releasing them slowly (page 15, lines 13-18). The adjuvants are polymers, including block copolymers wherein a specific example of the preferred adjuvant is CARBOPOL ™ (page 15, lines 23-28). Therefore, the CARBOPOL ™ is an encapsulating polymer adjuvant that releases antigens slowly at the site of injection without significant permanent injection site lesion formation.

Therefore it would have been prima facie obvious at the time of applicants' invention to apply the encapsulating polymer adjuvant of Lund's to Roberts method of immunizing cattle in order to avoid irritation and significant lesion formation at the injection site. One of ordinary skill in the art would have a reasonable expectation of success by exchanging the readily dispersible soluble adjuvants of Roberts for the adjuvant polymer of Lund because Roberts teaches that clostridial vaccines require adjuvants in order to increase potency and enhance stability of the bacterins and that clostridial vaccines are known to include CARBOPOL ™ polymers. Furthermore, no more than routine skill would have been required to exchange the adjuvant of Roberts for the commercially available and functionally equivalent encapsulating polymer adjuvant of Lund since Lund teaches that adjuvant polymers are retained at the injection site for prolonged slow release of antigens. Finally it would have been prima facie obvious to combine the invention of Roberts and Lund to advantageously achieve low tissue reactivity within the cattle and avoid chronic inflammatory responses, granulomas and abscesses.

Response to Arguments

6. Applicants argue that Roberts teaches against using an encapsulation polymer adjuvants that releases antigens slowly at the site of injection. A reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, including nonpreferred embodiments. *Merck & Co. v.Biocraft Laboratories,* 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989). See also *Celeritas Technologies Ltd. v. Rockwell International Corp.,*150 F.3d 1354, 1361,47 USPQ2d 1516, 1522-23 (Fed. Cir.1998) (The court held that the prior art anticipated the claims even though it taught away from the claimed invention. "The fact that a modem with a single carrier data signal is shown to be less than optimal does not vitiate the fact that it is disclosed."). In the instant case, Roberts may be relied upon because it reasonably suggest to one having ordinary skill the art multicomponent vaccines comprising encapsulating adjuvants administered in a low dose volume of about 2 ml. Therefore, no more than routine skill would have been required to exchange the adjuvant of Roberts for the commercially available and functionally equivalent encapsulating polymer adjuvant of Lund since Lund teaches that adjuvant polymers are retained at the injection site for prolonged slow release of antigens.

Applicants argue that no practitioner would exchange the adjuvants of Roberts for the adjuvants of Lund. However, Roberts may be relied upon because it reasonably suggest to one having ordinary skill in the art the administration of multicomponent vaccines in low dose volumes of about 2ml having dispersible, soluble adjuvants. Roberts states that potent adjuvants such as carbopol have been used in clostridial

vaccines. Therefore, Roberts have disclosed the polymer adjuvant even though Roberts refers to polymer adjuvants as nonpreferred embodiments. Polymer adjuvants, including carbopol, which are known to readily absorb water and due to its hydrophilic nature, and cross-linked structure, are known to useable for controlled release drug delivery systems. Roberts even cites prior art references teaching the adjuvants can be admixed in liposomes. The instant specification at page 15, lines 22-28, state that polymers, including liposomes are adjuvants that function by encapsulating the antigen and releasing them over a period of weeks to months. Roberts teaches: compositions using water dispersible, water soluble adjuvants; the previous use of carbopol with clostridial vaccines; and the use of polymer adjuvants such as liposomes. Lund teaches an adjuvant polymers, such as CARBOPOL ™, are retained at the site for prolonged slow release that acts by adsorbing the active agent onto the polymer. Finally, Roberts and Lund teach the instant claims, because it is likely that a 2ml of the vaccine will result in a smaller lesion as compared with a 5ml injection of that same vaccine.

Applicants urge that Roberts do not teach the use of encapsulating polymers. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been prima

facie obvious at the time of applicants' invention to apply the encapsulating polymer adjuvant of Lund's to Roberts method of immunizing cattle in order to avoid irritation and significant lesion formation at the injection site. Furthermore, a practitioner of ordinary skill in the art would have a reasonable expectation of success by exchanging the readily dispersible soluble adjuvants of Roberts for the adjuvant polymer of Lund because Roberts teaches that clostridial vaccines require adjuvants in order to increase potency and enhance stability of the bacterins and that clostridial vaccines are known to include CARBOPOL ™ polymers.

New Grounds of Rejection

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 46-48 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

Neither the specification nor originally presented claims provides support for a method of immunizing cattle without significant injection site lesion formation comprising

amount of injecting into said cattle about 2ml of a multicomponent vaccine for cattle comprising an immunogenically effective combination of a protective antigen component from six or seven clostridial organisms, a protective antigen component from at least one non-clostridial organism which is *Moraxella bovis* (*M.bovis*) and an encapsulating polymer adjuvant whereby the encapsulating polymer adjuvant releases antigens slowly at the site of injection and whereby injection site lesion formation is reduced at least 40% compared with an injection of 5 ml of said vaccine into said cattle and effective immunization is accomplished.

Applicant did not point to support in the specification for an injection site lesion formation is reduced at least 40% compared with an injection of 5 ml of said vaccine into said cattle and effective immunization is accomplished. Applicant has pointed to pages 54 and Tables 12 and 13 of the instant specification and claims for support of the amendment. However the reduction of lesions after weaning is only 33.2% not at least 40% in Table 12. Table 14 shows the quantity of trim to remove lesion is 39.1. Thus, there appears to be no teaching of an injection site lesion formation is reduced at least 40% compared with an injection of 5 ml of said vaccine into said cattle and effective immunization is accomplished. Therefore, it appears that the entire specification appears to fail to recite support for the method of immunizing cattle without significant injection site lesion formation comprising amount of injecting into said cattle about 2ml of a multicomponent vaccine for cattle comprising an immunogenically effective combination of a protective antigen component from six or seven clostridial organisms, a protective antigen component from at least one non-clostridial organism which is

Moraxella bovis (*M.bovis*) and an encapsulating polymer adjuvant whereby the encapsulating polymer adjuvant releases antigens slowly at the site of injection and whereby injection site lesion formation is reduced at least 40% compared with an injection of 5 ml of said vaccine into said cattle and effective immunization is accomplished. Thus, it appears that there is no support in the specification. Therefore, applicants must specifically point to page and line number support for the identity the instantly claimed method of immunization. Therefore, the claims incorporate new matter and are accordingly rejected.

Conclusion

8. No claims allowed.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ja-Na Hines whose telephone number is 571-272-0859. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Shanon Foley, can be reached on 571-272-0898. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ja-Na Hines
November 20, 2007

MARK NAVARRO
PRIMARY EXAMINER